

**WEST** Generate Collection     Print

L5: Entry 11 of 13

File: USPT

Mar 26, 2002

DOCUMENT-IDENTIFIER: US 6361985 B1

TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

Brief Summary Text (3):

Galactosyltransferases promote the transfer of an activated galactose residue in UDP-galactose to the monosaccharide N-acetylglucosamine. This transfer is a step in the biosynthesis of the carbohydrate portion of galactose-containing glycoproteins, such as oligosaccharides and glycolipids, in animal tissues. One subgroup of the galactosyltransferases is the beta-1,3-galactosyltransferases, which are characterized by the elongation of type I oligosaccharide chains. Additionally, the beta-1,3-galactosyltransferases are found on glycoproteins and glycolipids, are important precursors of blood group antigens, and are present in soluble oligosaccharides of human milk. Similar to other members of galactosytransferases, the beta-1,3-galactosyltransferases require a divalent cation (Mn.sup.2+) to function. The beta-1,3-galactosyltransferases seem to have restricted tissue distributions.

Brief Summary Text (30):

The term "affinity tag" is used herein to denote a polypeptide segment that can be attached to a second polypeptide to provide for purification of the second polypeptide or provide sites for attachment of the second polypeptide to a substrate. In principal, any peptide or protein for which an antibody or other specific binding agent is available can be used as an affinity tag. Affinity tags include a poly-histidine tract, protein A (Nilsson et al., EMBO J. 4:1075, 1985; Nilsson et al., Methods Enzymol. 198:3, 1991), glutathione S transferase (Smith and Johnson, Gene 67:31, 1988), Glu-Glu affinity tag (Grussenmeyer et al., Proc. Natl. Acad. Sci. USA 82:7952-4, 1985), substance P, Flag.TM. peptide (Hopp et al., Biotechnology 6:1204-1210, 1988), streptavidin binding peptide, maltose binding protein (Guan et al., Gene 67:21-30, 1987), cellulose binding protein, thioredoxin, ubiquitin, T7 polymerase, or other antigenic epitope or binding domain. See, in general, Ford et al., Protein Expression and Purification 2: 95-107, 1991. DNAs encoding affinity tags and other reagents are available from commercial suppliers (e.g., Pharmacia Biotech, Piscataway, N.J.; New England Biolabs, Beverly, Mass.; Eastman Kodak, New Haven, Conn.).

Brief Summary Text (54):

The present invention is based upon the discovery of a novel cDNA sequence (SEQ ID NO:1) and corresponding polypeptide (SEQ ID NO:2) having homology to a family of proteins, the beta-1,3-galactosyltransferases. The beta-1,3-galactosyltransferases are part of the galactosyltransferases, which in turn, belong in the category of glycosyltransferases. The beta-1,3-galactosyltransferase family includes HSY15014 (Kolbinger, F. et al., Journal of Biol. Chem. 273: 433-440, 1998), HSGALT3, HSGALT4, (Amado, M. et al., ibid), E07739 (Katsutoshi, S. et al., Japanese patent, JP 1994181759-A/1), and Cardiac and Pancreatic Peptide (Human Genome Sciences, Inc., WO 98/44112). Enzymes in this category are responsible for transferring galactose to carbohydrate chains during biosynthesis. It has been predicted that the beta-1,3-galactosyltransferase family members are in the alpha/beta barrel (TIM barrel) folding class of enzymes, similar to other glycosyltransferases such as the alpha-amylases and beta-glycanases (Yuan, Y. et al., Cell 88:9-11, 1997). Another member of the beta-1,3-galactosyltransferase family is the Drosophila melanogaster locus Brainiac (brn) (Goode, S. et al., Devel. Biol. 178:35-50, 1996), also known as "putative neurogenic secreted signaling protein" or NSSP. Brn is required for epithelial development (Goode, ibid). This activity may be due to possible cell interactions between the membrane bound glycosyltransferase and oligosaccharide substrates on adjacent cell surfaces (Shur, ibid). The beta-1,3-galactosyltransferases family members are also known as neurogenic secreted signal peptides. See, for example, Shur, B. D., ibid, and Amado, M. et al., ibid.

Brief Summary Text (118):

To direct the export of a znssp6 polypeptide from the host cell, the znssp6 DNA is linked to a second DNA segment encoding a secretory peptide, such as a t-PA secretory peptide or a znssp6 secretory peptide. To facilitate purification of the secreted znssp6 polypeptide, a C-terminal extension, such as a poly-histidine tag, substance P, Flag peptide (Hopp et al., Bio/Technology 6:1204-1210, 1988; available from Eastman Kodak Co., New Haven, Conn.) or another polypeptide or protein for which an antibody or other specific binding agent is available, can be fused to the znssp6 polypeptide.

Brief Summary Text (119):

Moreover, using methods described in the art, polypeptide fusions, or hybrid znssp6 proteins, are constructed using regions or domains of the inventive znssp6 in combination with those of other human galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, .beta.3 Gal-T2, and .beta.3Gal-T3, or human homologs to the human ortholog of Brainiac), or heterologous proteins (Sambrook et al., ibid., Altschul et al., ibid., Picard, Cur. Opin. Biology, 5:511-5, 1994, and references therein). These methods allow the determination of the biological importance of larger domains or regions in a polypeptide of interest. Such hybrids may alter reaction kinetics, binding, constrict or expand the anti-complementary molecule specificity, or alter tissue and cellular localization of a polypeptide, and can be applied to polypeptides of unknown structure.

Brief Summary Text (120):

Fusion proteins can be prepared by methods known to those skilled in the art by preparing each component of the fusion protein and chemically conjugating them. Alternatively, a polynucleotide encoding both components of the fusion protein in the proper reading frame can be generated using known techniques and expressed by the methods described herein. For example, part or all of a domain(s) conferring a biological function may be swapped between znssp6 of the present invention with the functionally equivalent domain(s) from another family member, such as the human species ortholog of Brainiac, or other galactosyltransferases, etc. Such domains include, but are not limited to, the hydrophobic region thought to be a putative secretory signal sequence or transmembrane domain (residues 26 to 49 of SEQ ID NO:2), them stem or linker domain (residues 50 to 113 of SEQ ID NO:2), and other conserved motifs such as the beta-1,3-galactosyltransferase homology region (residues 114 to 378 of SEQ ID NO:2), and significant domains or regions in this family. Such fusion proteins would be expected to have a biological functional profile that is the same or similar to polypeptides of the present invention or other known galactosyltransferase family proteins (e.g. HSGALT3, HSGALT4, and Brainiac), depending on the fusion constructed. Moreover, such fusion proteins may exhibit other properties as disclosed herein.

Other Reference Publication (2):

Zhou et al. Molecular cloning of a human UDP-galactose:GlcNAcbeta1,3GalNAc beta1,3galactosyltransferase gene encoding an O-linked core3 elongation enzyme. Eur J of Biochemistry 263(2):571-576, Jul. 1999.\*

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 13 of 13 returned.****」 1. Document ID: US 20020119517 A1**

L5: Entry 1 of 13

File: PGPB

Aug 29, 2002

PGPUB-DOCUMENT-NUMBER: 20020119517

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020119517 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: August 29, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
White, David	Holbrook	MA	US	
Zhou, Jianghong	Chestnut Hill	MA	US	
Tartaglia, Louis A.	Newton	MA	US	

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 530/350, 536/23.5[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#) [Claims](#) [KIMC](#) [Draw Desc](#) [Image](#)**」 2. Document ID: US 20020115839 A1**

L5: Entry 2 of 13

File: PGPB

Aug 22, 2002

PGPUB-DOCUMENT-NUMBER: 20020115839

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020115839 A1

TITLE: 8797, a novel human galactosyltransferase and uses thereof

PUBLICATION-DATE: August 22, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Meyers, Rachel	Newton	MA	US	
MacBeth, Kyle	Boston	MA	US	
Tsai, Fong-Ying	Newton	MA	US	

US-CL-CURRENT: 536/23.1[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#) [Claims](#) [KIMC](#) [Draw Desc](#) [Image](#)**」 3. Document ID: US 20020107376 A1**

L5: Entry 3 of 13

File: PGPB

Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020107376  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020107376 A1

TITLE: 26199, 33530, 33949, 47148, 50226, and 58764, novel human transferase family members and uses therefor

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Meyers, Rachel	Newton	MA	US	
MacBeth, Kyle	Boston	MA	US	

US-CL-CURRENT: 536/23.2; 435/193, 435/320.1, 435/325, 435/6, 435/69.1, 435/7.23

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

↳ 4. Document ID: US 20020098564 A1

L5: Entry 4 of 13

File: PGPB

Jul 25, 2002

PGPUB-DOCUMENT-NUMBER: 20020098564  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020098564 A1

TITLE: Human beta-1,3-galactosyltransferase

PUBLICATION-DATE: July 25, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Conklin, Darrell C.	Seattle	WA	US	
Yamamoto, Gayle	Seattle	WA	US	
Gao, Zeren	Redmond	WA	US	
Jaspers, Stephen R.	Edmonds	WA	US	

US-CL-CURRENT: 435/193; 435/320.1, 435/325, 435/69.1, 536/23.2

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

↳ 5. Document ID: US 20020082194 A1

L5: Entry 5 of 13

File: PGPB

Jun 27, 2002

PGPUB-DOCUMENT-NUMBER: 20020082194  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020082194 A1

TITLE: Isolated human drug-metabolizing proteins, nucleic acid molecules encoding human drug-metabolizing proteins, and uses thereof

PUBLICATION-DATE: June 27, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Guegler, Karl	Menlo Park	CA	US	
Webster, Marion	San Francisco	CA	US	
Yan, Chunhua	Boyd's	MD	US	
Di Francesco, Valentina	Rockville	MD	US	
Beasley, Ellen M.	Darnestown	MD	US	

US-CL-CURRENT: 514/2; 435/183, 435/325, 435/6, 435/69.1, 536/23.2, 800/8

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWDs](#) | [Draw Desc](#) | [Image](#)

」 6. Document ID: US 20020052308 A1

L5: Entry 6 of 13

File: PGPB

May 2, 2002

PGPUB-DOCUMENT-NUMBER: 20020052308

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020052308 A1

TITLE: Nucleic acids, proteins and antibodies

PUBLICATION-DATE: May 2, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Rosen, Craig A.	Laytonsville	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 514/1; 435/183, 435/320.1, 435/325, 435/6, 435/69.1, 435/7.1, 530/350, 536/23.1

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWDs](#) | [Draw Desc](#) | [Image](#)

」 7. Document ID: US 20020037850 A1

L5: Entry 7 of 13

File: PGPB

Mar 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020037850

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020037850 A1

TITLE: Novel polypeptides and nucleic acids encoding same

PUBLICATION-DATE: March 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Vernet, Corine A. M.	North Branford	CT	US	
Shimkets, Richard A.	West Haven	CT	US	
Rastelli, Luca	Guilford	CT	US	
Burgess, Catherine E.	Wethersfield	CT	US	
Taupier, Raymond J. JR.	East Haven	CT	US	

US-CL-CURRENT: 514/12; 435/183, 435/325, 435/69.1, 436/6, 536/23.2

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

8. Document ID: US 20020019049 A1

L5: Entry 8 of 13

File: PGPB

Feb 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020019049

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020019049 A1

TITLE: Methods for enhancing the expression of a protein of interest by recombinant host cells

PUBLICATION-DATE: February 14, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Lok, Si	Seattle	WA	US	

US-CL-CURRENT: [435/455](#); [435/320.1](#), [435/91.1](#)

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

9. Document ID: US 20010024808 A1

L5: Entry 9 of 13

File: PGPB

Sep 27, 2001

PGPUB-DOCUMENT-NUMBER: 20010024808

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010024808 A1

TITLE: Leptin induced genes

PUBLICATION-DATE: September 27, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
White, David	Holbrook	MA	US	
Zhou, Jianghong	Chestnut Hill	MA	US	
Tartaglia, Louis A.	Watertown	MA	US	

US-CL-CURRENT: [435/69.1](#); [435/325](#), [435/6](#), [435/7.2](#), [530/350](#), [536/23.5](#)

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

10. Document ID: US 6416988 B1

L5: Entry 10 of 13

File: USPT

Jul 9, 2002

US-PAT-NO: 6416988

DOCUMENT-IDENTIFIER: US 6416988 B1

TITLE: Beta-1,3-galactosyltransferase homologs

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

11. Document ID: US 6361985 B1

L5: Entry 11 of 13

File: USPT

Mar 26, 2002

US-PAT-NO: 6361985

DOCUMENT-IDENTIFIER: US 6361985 B1

TITLE: Beta-1,3-galactosyltransferase homolog, ZNSSP6

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

12. Document ID: US 6077673 A

L5: Entry 12 of 13

File: USPT

Jun 20, 2000

US-PAT-NO: 6077673

DOCUMENT-IDENTIFIER: US 6077673 A

TITLE: Mouse arrays and kits comprising the same

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

13. Document ID: US 6025194 A

L5: Entry 13 of 13

File: USPT

Feb 15, 2000

US-PAT-NO: 6025194

DOCUMENT-IDENTIFIER: US 6025194 A

TITLE: Nucleic acid sequence of senescence assosciated gene

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Draw Desc](#) | [Image](#)

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**Terms**

L2 and (binding agent)

**Documents**

13

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Terms	Documents
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- [EPO Abstracts Database](#)
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**Database:** [IBM Technical Disclosure Bulletins](#)[L5](#)**Search:**[Refine Search](#)[Recall Text](#)[Clear](#)**Search History****DATE:** Monday, October 21, 2002   [Printable Copy](#)   [Create Case](#)**Set Name** **Query**

side by side

**Hit Count** **Set Name**

result set

DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ

<a href="#">L5</a>	L2 and (binding agent)	13	<a href="#">L5</a>
<a href="#">L4</a>	L2 and (1,3-N-acetylglucosaminyl transferase)	0	<a href="#">L4</a>
<a href="#">L3</a>	L2 and (1,3-N-acetylglucosaminyl transferase or beta 3 Gn-T5)	0	<a href="#">L3</a>
<a href="#">L2</a>	L1 same human	184	<a href="#">L2</a>
<a href="#">L1</a>	galactosyltransferase	462	<a href="#">L1</a>

END OF SEARCH HISTORY

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(FILE 'HOME' ENTERED AT 08:42:06 ON 21 OCT 2002)

INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,  
BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO,  
CABA,  
CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPY, DDFB,  
DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 08:42:22 ON  
21 OCT 2002

SEA GALACTOSYLTRANSFERASE

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13 FILE ADISALERTS  
1 FILE ADISNEWS  
166 FILE AGRICOLA  
28 FILE ANABSTR  
18 FILE AQUASCI  
13 FILE BIOBUSINESS  
4 FILE BIOCOMMERCE  
2482 FILE BIOSIS  
211 FILE BIOTECHABS  
211 FILE BIOTECHDS  
1042 FILE BIOTECHNO  
441 FILE CABA  
653 FILE CANCERLIT  
3157 FILE CAPLUS  
31 FILE CEABA-VTB  
2 FILE CEN  
6 FILE CIN  
106 FILE CONFSCI  
2 FILE CROPB  
57 FILE DDFB  
40 FILE DDFU  
660 FILE DGENE  
57 FILE DRUGB  
49 FILE DRUGU  
20 FILE EMBAL  
2099 FILE EMBASE  
655 FILE ESBIOBASE  
47 FILE FEDRIP  
4 FILE FROSTI  
38 FILE FSTA  
1702 FILE GENBANK  
93 FILE IFIPAT  
327 FILE JICST-EPLUS  
588 FILE LIFESCI  
2712 FILE MEDLINE  
5 FILE NIOSHTIC  
3 FILE NTIS  
1 FILE OCEAN  
668 FILE PASCAL  
2 FILE PHIN  
19 FILE PROMT  
2156 FILE SCISEARCH  
633 FILE TOXCENTER  
338 FILE USPATFULL  
2 FILE USPAT2  
2 FILE VETB

3 FILE VETU  
83 FILE PIDS  
83 FILE PINDEX  
L1 QUE GALACTOSYLTRANSFERASE

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FILE 'CAPLUS, BIOSIS, MEDLINE, SCISEARCH, EMBASE, BIOTECHNO' ENTERED AT  
08:45:08 ON 21 OCT 2002

L2 4762 S L1 AND HUMAN  
L3 10 S L2 AND (1,3-N-ACETYLGLUCOSAMINYL TRANSFERASE) OR (BETA  
3GN-T5  
L4 5 DUP REM L3 (5 DUPLICATES REMOVED)  
L5 0 S L2 AND (BIND? AGENT)

=> d 14 ibib ab 1-5

L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1  
ACCESSION NUMBER: 2001:482456 CAPLUS  
DOCUMENT NUMBER: 136:129751  
TITLE: Molecular cloning and characterization of UDP-GlcNAc:lactosylceramide .beta.1,3-N-acetylglucosaminyltransferase (.beta.  
3Gn-T5), an essential enzyme for the expression of HNK-1 and Lewis X epitopes on glycolipids  
AUTHOR(S): Togayachi, Akira; Akashima, Tomohiro; Ookubo, Reiko; Kudo, Takashi; Nishihara, Shoko; Iwasaki, Hiroko; Natsume, Ayumi; Mio, Hiroyuki; Inokuchi, Jin-Ichi; Irimura, Tatsuro; Sasaki, Katsutoshi; Narimatsu, Hisashi  
CORPORATE SOURCE: Division of Cell Biology, Institute of Life Science, Soka University, Tokyo, 192-8577, Japan  
SOURCE: Journal of Biological Chemistry (2001), 276(25), 22032-22040  
CODEN: JBCHA3; ISSN: 0021-9258  
PUBLISHER: American Society for Biochemistry and Molecular Biology  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A new member of the UDP-N-acetylglucosamine:.beta.-galactose .beta.1,3-N-acetylglucosaminyltransferase (.beta.3Gn-T) family having the .beta.3Gn-T motifs was cloned from rat and human cDNA libraries and named .beta.3Gn-T5 based on its position in a phylogenetic tree. We concluded that .beta.3Gn-T5 is the most feasible candidate for lactotriaosylceramide (Lc3Cer) synthase, an important enzyme which plays a key role in the synthesis of lacto- or neolacto-series carbohydrate chains on glycolipids.  
.beta.3Gn-T5 exhibited strong activity to transfer GlcNAc to glycolipid substrates, such as lactosylceramide (LacCer) and neolactotetraosylceramide (nLc4Cer; paragloboside), resulting in the synthesis of Lc3Cer and neolactopentaosylceramide (nLc5Cer), resp. A marked decrease in LacCer and increase in nLc4Cer was detected in Namalwa cells stably expressing .beta.3Gn-T5. This indicated that .beta.3Gn-T5 exerted activity to synthesize Lc3Cer and decrease LacCer, followed by conversion to nLc4Cer via endogenous galactosylation. The following four findings further supported that .beta.3Gn-T5 is Lc3Cer synthase. The .beta.3Gn-T5 transcript levels in various cells were consistent with the activity levels of Lc3Cer synthase in those cells. The .beta.3Gn-T5 transcript was presented in various tissues and cultured cells. The .beta.3Gn-T5 expression was up-regulated by stimulation with retinoic acid and down-regulated with 12-O-tetradecanoylphorbol-13-acetate in HL-60 cells. The changes in .beta.3Gn-T5 transcript levels during the rat brain development were detd. Points 2, 3, and 4 were consistent with the Lc3Cer synthase activity reported previously.

REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:867515 CAPLUS

DOCUMENT NUMBER: 136:132636

TITLE: A novel member of the glycosyltransferase family,  
.beta.-3Gn-T2, highly downregulated in invasive

human bladder transitional cell carcinomas

AUTHOR(S): Gromova, Irina; Gromov, Pavel; Celis, Julio E.

CORPORATE SOURCE: Institute of Cancer Biology, Danish Cancer Society,  
Copenhagen, 2100, Den.

SOURCE: Molecular Carcinogenesis (2001), 32(2), 61-72

CODEN: MOCAE8; ISSN: 0899-1987

PUBLISHER: Wiley-Liss, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Differential display reverse transcription (DDRT)-polymerase chain reaction (PCR) was used to compare the transcriptomes of invasive and noninvasive fresh **human** bladder transitional cell carcinomas. A differentially expressed novel gene sharing structural similarity with

the

**human .beta.-3-galactosyltransferase** family, **.beta.-1,3-N-acetylglucosaminyl-transferase**-T2 (**.beta.-3Gn-T2**), was identified. The full-length **.beta.-3Gn-T2** cDNA, contg. a complete open reading frame of 1193 bp, was cloned and sequenced. **.beta.-3Gn-T2** exhibited 29-41% homol. to the multigene **.beta.-3-galactosyl-transferase** family. Expression of the full-length **.beta.-3Gn-T2** cDNA in an in vitro coupled transcription/translation assay yielded a primary translation product

with

an apparent Mr of 46 kDa, which is in agreement with the predicted 397-amino-acid protein encoded by **.beta.-3Gn-T2**. Multiple peptide alignment showed several sequence motifs corresponding to putative catalytic domains that are conserved throughout all members of the **.beta.-3-galactosyltransferase** family, namely, a type II transmembrane domain, a conserved D-times-D motif, an N-glycosylation site, and five conserved cysteines. By RT-PCR strong downregulation of **.beta.-3Gn-T2** expression was noted in invasive **human** bladder transitional cell carcinomas (16 fresh biopsy samples: grade III, T2-T4) compared with their noninvasive counterparts (15 fresh biopsies: grade

II,

Ta), suggesting that **.beta.-3Gn-T2** may be involved in cancer progression.

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 3 OF 5 SCISEARCH COPYRIGHT 2002 ISI (R)

ACCESSION NUMBER: 1999:284076 SCISEARCH

THE GENUINE ARTICLE: 183VR

TITLE: Enzymatic synthesis of natural and C-13 enriched linear poly-N-acetyllactosamines as ligands for galectin-1

AUTHOR: DiVirgilio S; Glushka J; Moremen K; Pierce M (Reprint)

CORPORATE SOURCE: UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS, GA 30602  
(Reprint); UNIV GEORGIA, DEPT BIOCHEM & MOL BIOL, ATHENS, GA 30602; UNIV GEORGIA, COMPLEX CARBOHYDRATE RES CTR, ATHENS, GA 30602

COUNTRY OF AUTHOR: USA

SOURCE: GLYCOBIOLOGY, (APR 1999) Vol. 9, No. 4, pp. 353-364.

Publisher: OXFORD UNIV PRESS, GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND.

ISSN: 0959-6658.

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\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB As part of a study of protein-carbohydrate interactions, linear N-acetyl-polylactosamines [Gal beta 1,4GlcNAc beta 1,3] (n) were synthesized at the 10-100  $\mu$  mol scale using enzymatic methods. The methods described also provided specifically [1-C-13]galactose-labeled tetra- and hexasaccharides ([1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc and Gal beta 1,4GlcNAc beta 1,3[1-C-13]Gal beta 1,4GlcNAc beta 1,3Gal beta 1,4Glc) suitable for NMR studies. Two series of oligosaccharides were produced, with either glucose or N-acetylglucosamine

at the reducing end. In both cases, large amounts of starting primer were available from **human** milk oligosaccharides (trisaccharide primer GlcNAc beta 1,3Gal beta 1,4Glc) or via transglycosylation from N-acetyllactosamine, Partially purified and immobilized glycosyltransferases, such as bovine milk beta 1,4 **galactosyltransferase** and **human** serum beta 1,

**3 N-acetylglucosaminyl-transferase**, were used for the synthesis. All the oligosaccharide products were characterized by H-1 and C-13 NMR spectroscopy and MALDI-TOF mass spectrometry, The target molecules were then used to study their interactions with recombinant galectin-1, and initial H-1 NMR spectroscopic results are presented to illustrate this approach. These results indicate that, for oligomers containing up to eight sugars, the principal interaction of the binding site of galectin-1 is with the terminal N-acetyllactosamine residues.

L4 ANSWER 4 OF 5 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V.

ACCESSION NUMBER: 94218558 EMBASE

DOCUMENT NUMBER: 1994218558

TITLE: Two different glycosyltransferase defects that result in GalNAc.alpha.-O-peptide (Tn) expression.

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029 Clinical Biochemistry

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SUMMARY LANGUAGE: English

AB This study shows for the first time that different glycosyl-transferase defects in the biosynthesis of O-linked oligosaccharides give rise to the same GalNAc.alpha.-O-Ser/Thr determinant on Tn erythrocytes and colorectal

carcinoma cells. The O-linked oligosaccharides isolated from the glycophorins of Tn erythrocytes contained predominantly .alpha.-N-acetylgalactosamine-O-Ser/Thr (Tn antigen) and sialyl-Tn. A marked reduction in normal sialylated oligosaccharides was also observed. Monoclonal antibody BRIC 111 raised against Tn erythrocytes reacted with both Tn erythrocytes and colorectal carcinoma tissues. Weak staining was detected in the supranuclear area and at the surface membranes in normal colorectal cells, but was absent from goblet cell vesicles. An increase in

supranuclear staining over controls was found in tumour tissue and in the majority of resection margin specimens. The highest levels of staining were present in transitional mucosa, adjacent to the tumours where goblet vesicles were also positive. Glycosylation defects in the same patients were further studied by determination of the activity of glycosyltransferases in mucosal tissue from control and cancer patients.

The reduction in or loss of .beta.1-3 N-

**acetylglucosaminyl transferase** activity to

GalNAc-peptide in asialo-ovine submaxillary gland glycoprotein was detected by direct assay and by isolation of the oligosaccharides from

the

incubation products. No differences in N-acetylglucosaminyl-, galactosyl- or sialyl- transfer to Gal. $\beta$ .1-3GalNAc in antifreeze glycoprotein or in

sialyl transferase to asialo-ovine submaxillary gland glycoprotein were detected. Our study shows that the GalNAc. $\alpha$ -O-Ser/Thr determinant on Tn erythrocytes and in colorectal carcinoma results from different glycosyltransferase defects in separate biosynthetic pathways for haematopoietic and epithelial tissues.

L4 ANSWER 5 OF 5 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1984:209710 BIOSIS

DOCUMENT NUMBER: BA77:42694

TITLE: UDP N ACETYL GLUCOSAMINE GALACTOSYL-BETA-1-4-N-  
ACETYLGLUCOSAMINYL-BETA-1-3-N  
**-ACETYLGLUCOSAMINYL TRANSFERASE**  
IDENTIFICATION AND CHARACTERIZATION IN **HUMAN**  
SERUM.

AUTHOR(S): PILLER F; CARTRON J-P

CORPORATE SOURCE: INST. NATL. SANTE RECHERCHE MEDICALE U76, CENTRE NATIONAL  
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SOURCE: J BIOL CHEM, (1983) 258 (20), 12293-12299.  
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FILE SEGMENT: BA; OLD

LANGUAGE: English

AB A  $\beta$ .1-3-N-Acetylglucosaminyltransferase was detected in **human** serum which transfers N-acetylglucosamine residues from UDP-GlcNAc to terminal Gal. $\beta$ .1-4Glc(NAc) structures in oligosaccharides, glycoproteins, glycolipids and proteoglycans. The product of the transferase reaction with lactose as acceptor was identified by methylation analysis and mass spectrometry as GlcNAc. $\beta$ .1-3Gal. $\beta$ .1-4Glc. The  $\beta$ -linkage of the GlcNAc in the synthesized trisaccharide was confirmed by the action of the specific enzymes  $\beta$ -hexosaminidase and  $\beta$ .-N-acetylglucosaminide  $\beta$ .1-4-galactosyltransferase. Kinetic parameters were determined for UDP-GlcNAc, lactose and N-acetyllactosamine. The enzyme requires Mn<sup>2+</sup> ions for maximal activity and shows a pH optimum between 6 and 8. Using a wide variety of synthetic and natural oligosaccharides, the substrate specificity of the  $\beta$ .1-3N-acetylglucosaminyltransferase was investigated. The enzyme recognized specifically the free terminal structure Gal. $\beta$ .1-4Glc(NAc). The substrate specificity was equally stringent for glycoconjugates.

Among

the glycoproteins and glycolipids tested as acceptors, N-acetylglucosamine was incorporated only into those containing free terminal Gal. $\beta$ .1-4Glc(NAc) structures. When the terminal galactose residues were partially removed, the transfer of N-acetylglucosamine was strongly reduced.